

# DIVISION OF FOREST PEST CONTROL



## *Northeastern Area State & Private Forestry*

Report No. S-69-33

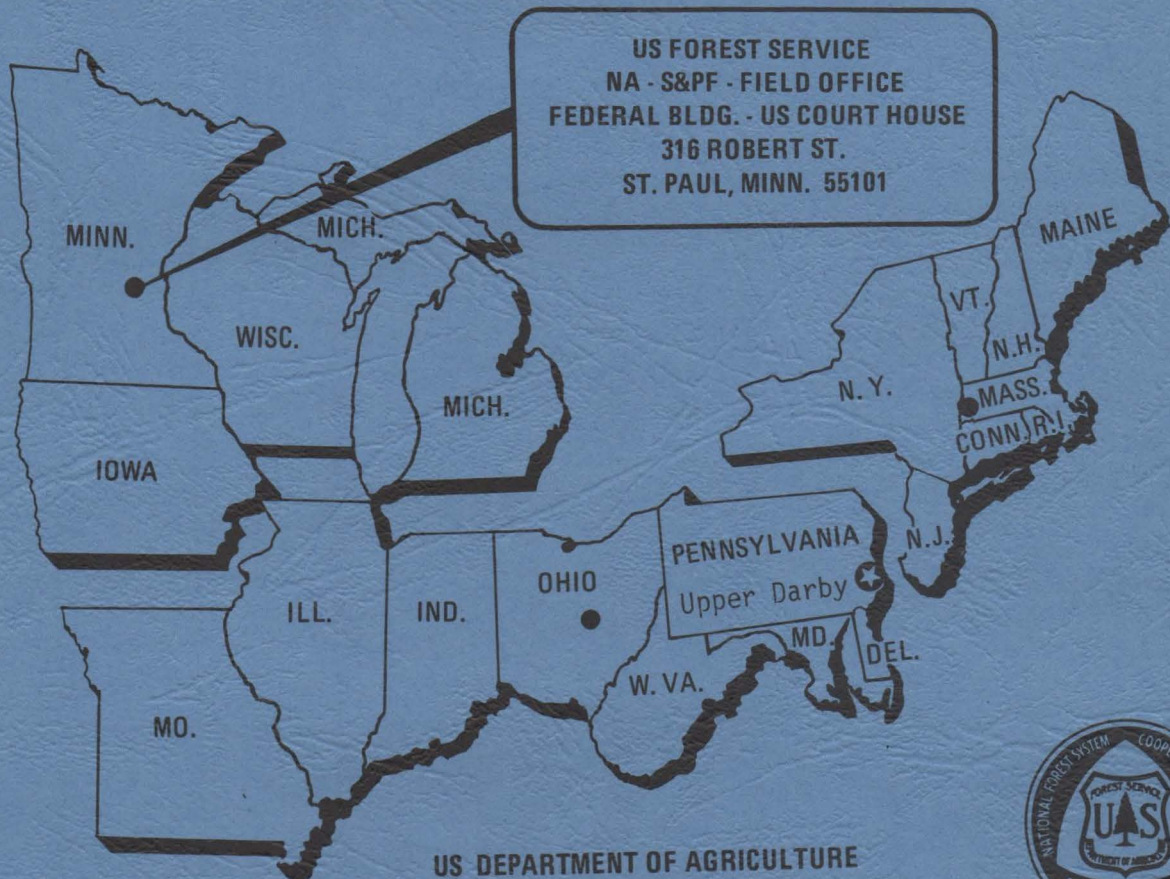
September 1969

5230

BIOLOGICAL EVALUATION OF  
RED-HEADED PINE SAWFLY ON  
THE CADILLAC RANGER DISTRICT

By

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US DEPARTMENT OF AGRICULTURE  
FOREST SERVICE



# ABSTRACT

Two red pine plantations on the Cadillac Ranger District, Manistee National Forest, Michigan, are infested with the red-headed pine sawfly, Neodiprion lecontei (Fitch). The Forest Manager is advised to consider insecticidal treatment to prevent further damage.

## INTRODUCTION

The red-headed pine sawfly, Neodiprion lecontei (Fitch), is an important pest of pine plantations. The Cadillac District Ranger, Manistee National Forest, reported the sawfly defoliation to Forest Pest Control, St. Paul Field Office. The Field Office staff prepared the evaluation survey plan and the District Foresters from Cadillac collected the field data.

## TECHNICAL INFORMATION

### A. Causal Agent:

Red-headed pine sawfly, Neodiprion lecontei (Fitch)

### B. Host Tree:

Red pine, Pinus resinosa Ait.;

### C. Type of Damage:

Larval feeding on current and old needles. Complete defoliation of red pine branch or tree results in death of the branch or tree (Benjamin, 1955),

### D. Ecological Factors:

Although more than 50 insect parasites and predators attack the sawfly, seldom do they effectively control outbreak populations. Outbreak collapses have been attributed to diseases and weather. Rodents feed heavily on the overwintering cocoons, but their affect on population is not known (Benjamin, 1955; Schaffner, 1951; MacAloney, 1957).

### E. Location and Extent of Outbreak:

The sawfly is on the increase on the Cadillac Ranger District. Some colonies or feeding was reported from many plantations, but only 2 have sufficiently large populations to consider control.

A defoliation survey to determine the 1969 sawfly activity was made by Messrs. M. Goebel and A. Easterbrook, Foresters, Cadillac Ranger District, and 2 summer students from the St. Paul Field Office. The 2 outbreaks were found by the District staff, and the conditions are described as follows:

## AREA I

Plantation description

Location	T22N, R11W, Sec. 6 E1/2 SW
Area	45 acres
Stocking	775 trees/acre
Average height	3.5 feet
Sample size	200 trees (40 clusters of 5 trees each)

Damage

All trees with defoliation	23.5%
Trees with 50% or more defoliation	11.5%
Trees with 90% or more defoliation	7.5%

## AREA II

Plantation description

Location	T22N, R11E, Sec. 28 NE
Area	15 acres
Stocking	695 trees/acre
Average height	3.3 feet
Sample size	70 trees (14 clusters of 5 trees each)

Damage

All trees with defoliation	20%
Trees with 50% or more defoliation	10%
Trees with 90% or more defoliation	3%

## F. Discussion:

The survey results show that the red-headed pine sawfly was present in outbreak numbers in 2 plantations during 1969. Since the sawfly overwinters in a cocoon in the ground where it is difficult to sample, the earliest population estimate can be made in June 1970 from an egg survey. However, on the basis of current damage and the great potential for population increase, severe damage to the plantations is probable in 1970.

Only DDT is registered for red-headed pine sawfly control. However, DDT is not recommended because of its adverse effects to non-target organisms and its long residual persistence in the environment.

Malathion is effective against sawflies in general. Good control was obtained with  $\frac{1}{2}$  lb. malathion per acre applied as water emulsion with a mistblower (Fowler, 1969). This control method may be registered by next year. If not, further pilot tests will be necessary in cooperation with the St. Paul Field Office.

Aerial spray of sawfly is likely to reduce control costs. Ultra low volume application of technical Malathion (10 fl. Oz./acre) is registered for the European pine sawfly (Neodiprion sertifer), a relative of the red-headed pine sawfly. A pilot test is advisable to evaluate malathion when applied in ultra low volume.

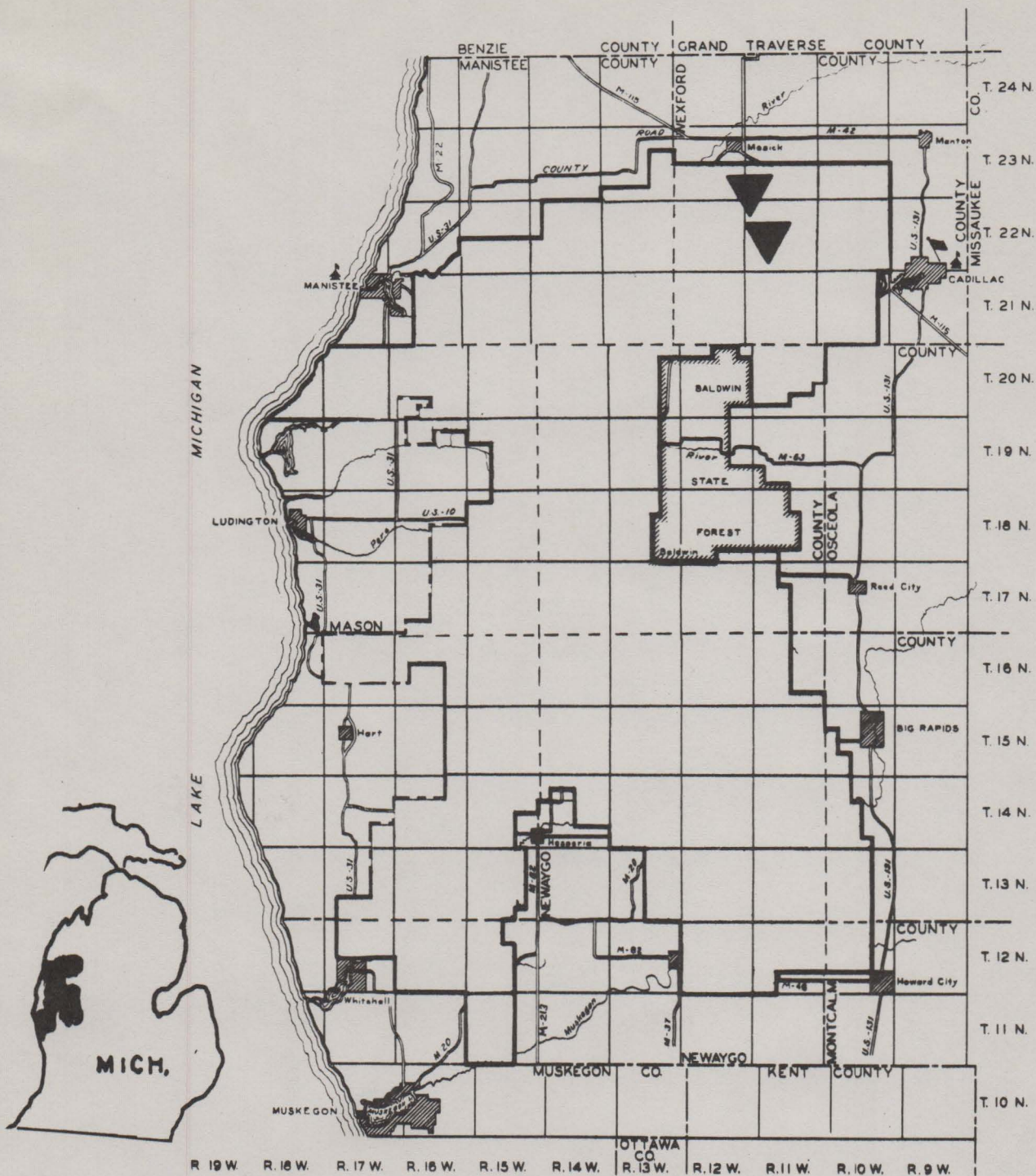
G. Recommendation:

1. The Forest Manager is advised to consider insecticidal control of the red-headed pine sawfly in the 2 reported plantations. Adverse-effects and Cost-Benefit Analysis (FSM 5230) should be based on the use of  $\frac{1}{2}$  lb. malathion water emulsion applied with a mistblower. The St. Paul Field Office should be consulted for additional technical information when needed.
2. A pilot test to evaluate ultra low volume malathion control of the sawfly is advisable. A need for such a test should be indicated to the St. Paul Field Office.
3. All field personnel should be on the lookout for red pine defoliation and report their discoveries on Form NA 5200-1.

Literature References

- Fowler, R.F. 1969. Red-headed pine sawfly control with Malathion on the Manistee National Forest. USDA-Forest Service, NA-S&PF, St. Paul FO, Rpt. No. S-69-31. 2 pp.
- Benjamin, D.M. 1955. The Biology and Ecology of the red-headed pine sawfly. USDA- Forest Service Tech. Bull. 118.57 pp.

# MANISTEE NATIONAL FOREST



KEY:



Red-headed Pine Sawfly infested plantation

TYPICAL TWP

6	5	4	3	2	1
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

